Excellent Researcher or Good Public Servant? The Interplay between Research and Academic Citizenship

Excellent Researcher or Good Public Servant? The Interplay between Research and Academic Citizenship

Maria Rita Tagliaventi[a]

Department of Sociology and Business Law

University of Bologna

Via San Giacomo 3

40126 Bologna

Italy

Giacomo Carli

Department of Strategy and Marketing

Open University Business School

Walton Hall

Milton Keynes MK7 6AA

United Kingdom

Donato Cutolo

Department of Management

University of Bologna

Via Capo di Lucca 34

40126 Bologna

Italy

[a] Corresponding author:

maria.tagliaventi@unibo.it

Office phone number: +39 051 2090203

Excellent Researcher or Good Public Servant? The Interplay between Research and Academic Citizenship

Academics have always been endowed with the privilege of autonomy, but the diffusion of evaluation systems based on publication outcomes potentially jeopardizes the benefits deriving from behaviors that address other pillars of higher education. Besides research and teaching, academic citizenship, i.e., the service behaviors carried out within and outside organizational boundaries, are in fact cornerstones of university functioning. We investigate the relationship between academic citizenship and research after the introduction of an evaluation system that moves research performance to center stage on a dataset collecting publication records and service activities of 353 Italian scholars in the accounting discipline in the 2004-2013 period. A cluster analysis reveals different academics' orientations towards research and academic citizenship. We contribute to the debate on academic choices by showing that a large number of university members tend to focus on a single type of academic citizenship or to adopt a research orientation, while a significant part remains stuck in the middle without achieving satisfying performance in any domains according to international standards, and discuss implications for the design of behavioral incentives.

Keywords: Citizenship; Research; Accountability; Performance; Institutional Change; Trade-off; Evaluation; Clustering

1. Introduction

The increasing focus on research in higher education, measured through the number of publications on top journals and citations attained by single researchers, has unbalanced university life on the research side and puzzled academics about how much time and effort to devote to activities that differ from research (Lewis 2014; Degn 2016). A complex system like academia, however, needs all of its parts to be harmonized to function effectively (Bak and Kim 2015). Literature has long debated the complex interplay between research and teaching: in particular, whether research and teaching are mutually benefiting or competing domains remains yet to be clarified (e.g., Hattie and Marsh 1996). Lately, studies have also delved into the difficulty to combine research with impact on society through knowledge transfer (Aguinis et al. 2014; Butler et al. 2015). A largely neglected relationship refers to research and academic citizenship, i.e., the service carried out within and outside organizational boundaries on behalf and for the sake of the institution, such as serving on committees, acting as program directors, or representing the university on the media (Vogelgesang et al. 2010; Macfarlane 2011; Lawrence et al. 2012). Academic citizenship is necessary for university management and thriving, and this consideration prompts the need for investigating the relationship between research and academic citizenship further.

This paper aims to grasp the interplay between research and service behaviors and what factors affect this relationship. Through a quantitative multi-method study conducted on a sample of academics in the accounting discipline in Italy, we bring to the fore five groups of academics. Three of them are polarized on a specific activity: research, institutional service, or public service. Members of a fourth group perform a variety of activities, while individuals belonging to yet another group are 'caught in between' different activities. We also show that a path-dependent effect actually drives the affiliation of academics to the above groups, while other individual characteristics like academic rank turn out not to affect significantly research

and service outcomes. The effect of gender is multifaceted: while it shows that men do not excel in scientific productivity, it does not corroborate the expectation that women take most charge of academic citizenship, either. Male faculty in fact tend to outperform women in terms of service that conveys visibility and prestige.

Our paper raises awareness towards the effects of interventions that may be based on formally good principles, such as fostering national growth through excellence in research and an increase in efficiency (Martin 2011; Fussy 2017). Only a limited number of individuals can perform well both in research and academic citizenship: the largest majority either stick to one type of activity or perform scarcely in all the activities investigated. Additionally, when international criteria of scientific productivity are taken into account, the effort of academics that target local audiences are trivialized. They can be considered as unproductive when they actually are not. Eventually, policy makers should comprehend that stress on research may come at the expense of service that is fundamental for organizational life, and accordingly introduce appropriate rewards to acknowledge service.

2. Theoretical Background

2.1. Different engagements in academic life

Academics across the world experience the everyday challenge of combining different, often competing, requests, ranging from teaching to service and research. If managing the 'contested triad' (Pifer and Baker 2013, p. 118) and being able to assume a 'tripartite role' (Macfarlane 2011, p.59) made of teaching, research, and service, has always been part of academic life, faculty would enjoy in the past considerable autonomy without an overt pressure to excel in research leading to the perception of 'winners and losers in a game of academic prestige' (Knights and Clarke 2014, p. 338). The emphasis placed on research outcomes over the past decades has, however, presented faculty members with the necessity to handle potentially conflicting choices. As Pifer and Baker (2013, p. 118) stated, 'it is no

longer the case that the average academic is employed in a tenure-line position that formally weighs all three roles equally (and informally values research first and foremost)'. Over the past years, following a similar trend across countries, evaluation of research has become the central premise of the functioning of most universities and of individual career advancement (Knights and Clarke 2014), and performance-based measurement systems have been implemented (Frølich 2011; Teelken 2015; Fussy 2017).

Research is not the only expectation posed upon academics, though, as the experience of most of our readers can testify to. Academics are still called to perform other duties: teach students, have an impact on society through knowledge transfer, and provide service within and outside the boundaries of their organizations (Macfarlane 2007; Aguinis et al. 2014). Some meaningful expressions have been used to describe the struggle that academics increasingly face to realize to which activities they should devote effort (Bak and Kim 2015). Knights and Clarke (2014, p. 6) named it the 'competitive nature of performative demands', while Empson (2013, p. 233) referred to the 'infidelities' and to the sensation of 'leading a double life' that faculty members feel when they shift away from research-related activities. In general, Holmstrom and Milgrom (1994) talked about an 'effort substitution' that leads individuals to sacrifice teaching and administrative work in favor of research, which has been identified as a trade-off between research and teaching (e.g., Hattie and Marsh 1996; Wiley et al. 2016). A trade-off has been evoked for the relationship between research and knowledge transfer to various stakeholders, too (e.g., Hodgkinson and Starkey 2011; Aguinis et al. 2014; Kieser et al. 2015).

2.2. The interplay between research and academic citizenship

A still overlooked interplay regards research and academic citizenship (Shils 1997; Kennedy 1997; Lawrence et al. 2012; Holland 2016). Although this label refers to citizenship, there is

a difference from the organizational citizenship behaviors investigated in organizational studies (e.g., Organ et al. 2005): while academic citizenship is meant to benefit organizations, it is not necessarily chosen on a voluntary basis nor is it performed without any expectations of recognition, be it formal or informal. In the higher education case, academic citizenship can be quite diverse in nature (Macfarlane, 2007, Vogelgesang et al. 2010; Holland, 2016). A synthetic classification is proposed by Lawrence et al. (2012) who underline the service nature of academic citizenship: it can be service to one's discipline or discipline-based service (e.g. organizing an academic conference, acting as a peer reviewer or journal editor), service to the university or institutional service (e.g., being the director of a degree program or a member of the university Senate), or service to the community or public service (e.g., giving public lectures, sitting on boards of public and charitable organizations).

The difficulty to combine research and academic citizenship that individuals may experience in their work life actually calls into question an organizational paradox. Academic citizenship is as essential for universities as it is still scarcely formally rewarded. Literature is in fact mostly silent about the acknowledgment of citizenship for scholars' career progression (Macfarlane 2011; Lawrence et al. 2012). Among the remarkable exceptions, Neumann and Terosky (2007) posited that, while service to profession may be considered in tenure decisions, public and institutional service is usually not. Concerning this, it is worth stressing that discipline-based activities are the kind of service that most resonates with research engagement, as they both address the scientific community (Thompson et al. 2005).

A decline in academic citizenship related to the emphasis posed on research has been voiced by many scholars (e.g.,Thompson et al. 2005; Pifer and Baker 2013; Bolden et al. 2014). Academics' effort might be so directed towards research that the metaphors of 'hollowing out' and 'unbundling' have been evoked for the academic role (Austin 2002; Macfarlane 2011). The focus on research risks gradually depleting the role of academics of core tasks:

staff members, such as teaching fellows specifically hired and trained, are replacing, in many situations, academics, thus taking on the role of 'para-academics' (Macfarlane 2011). This tendency has matched the concurrent enrichment of administrative staff roles with new tasks and interactions, particularly aimed at fundraising to sustain research and at fostering internationalization, which are turning them into 'blended professionals' (Whitchurch 2009, 2010). The decline of service might be particularly subtle because it can gradually, perhaps to their unawareness, marginalize academics in decision-making processes, such as those concerning the teaching structure and the organization of departments and research groups. Consequently, by reducing academic citizenship, academics can be deprived of the possibility to have a say in the very choices that affect their, as well as their organizations', future (Thompson et al. 2005).

The relationship between research and academic citizenship can be fruitfully grasped in the case of the Italian higher education system, which is deemed an interesting case due to its history (Bonaccorsi et al. 2017). Long acknowledged to be a realm of favoritism ruled by 'academic mandarins' and embedded in a network of power relations undermining meritocracy (Nature 2010; Abramo et al. 2011; Daraio and Moed 2011), Italian university has been the object of a reform in 2010, known as 'Gelmini reform', whose objectives were twofold: on one hand, introducing a performance-based measurement system to centrally allocate resources to single universities and improve overall efficiency; on the other, establishing research achievements as the foundation for promotion to associate and full professorship (Cartlidge 2010; Capano 2011; Bonaccorsi et al. 2017; Franceschini and Maisano 2017). Concerning this latter point, it was argued that a reform was necessary to 'free researchers from the virtual slavery under which they have been kept by old academicians' (Frischknecht 2008): careers were believed to be submitted to personalistic and obscure decisions rather than to merit-based appraisals. The reform introduced a two-step

process for academic progressions ('Abilitazione Scientifica Nazionale' or National Qualification Exam: Capano 2011; Rebora and Turri 2013): in the former stage, a national competition takes place that requires that candidates first and foremost attain given publication records (the so-called 'threshold values'), which differ from discipline to discipline, in order for their CVs to be taken into account. Academic citizenship is usually reported in CVs (Macfarlane 2018), but it has to be underlined that, while criteria for research assessment are specified in the national competition call and are the same for all disciplines, the criteria for gauging service are established by each disciplinary committee. The latter stage is a local competition that allows universities to select candidates for opening positions only among academics who have successfully passed the first step. The relevance explicitly conveyed to research over other academic outcomes by the reform design addressed the main concern that, unless accountability and transparency became the tenet of university choices at any level, Italian higher education would undergo a dramatic decline that had already been marked since 2008 (Daraio and Moed 2011; Bonaccorsi et al. 2015).

3. The Individual Characteristics Affecting the Relationship between Research and Academic Citizenship

This paper aims to inform our understanding of the relationship between research and academic citizenship through an analysis of Italian academics' activities before and after the research-oriented reform. First, whether different types of interplay between research and service occur has to be grasped. Thus, we first intend to probe the existence of different patterns of engagement in research and service through the following hypothesis:

Hypothesis 1: Exposed to research excellence pressure, academics display different combinations of research and academic citizenship activities.

Once tested whether different patterns between research and academic citizenship can be found after a focus on research has been legitimized, a better comprehension of the factors driving their interplay is needed. While studies on research have extensively tapped into the antecedents of scientific productivity both at the individual and organizational level (e.g., Landry et al. 2010; Salter et al. 2017), the still limited reflection on academic citizenship has mostly delved into the individual characteristics that may foster or hamper the enactment of service (Vogelgesang et al. 2010). We proceed along this line of investigation, which can be traced back to the autonomy and individual agency that faculty have traditionally been attributed (Pifer and Baker 2013; Knights and Clarke 2014), with the aim to shed further light on the personal features that influence engagement in research or in academic citizenship. It has to reminded, though, that, even when individual features are taken into account, speculation on academic citizenship still lags significantly behind the robust theorizing that has targeted scientific productivity so far.

In particular, academics may be subjected to a path dependency that motivates them to repeat familiar activities. According to behavioral consistency theory (Wernimont and Campbell 1968), in fact, the best predictor of a future job performance is the past performance in the same task. Being able to successfully carry out a task increases related skills and fosters knowledge of the process. The experience cumulated within a domain can lay the premises for attaining social validation of one's identity as expert in that field and generate a sense of self-enhancement and self-continuity (Ashforth 2001; Swann et al. 2009; Ashforth et al. 2016). This explanation, rooted in cognitive and social psychology, can underlie research performance: past productivity has in fact been shown to explain future publication results (Williamson and Cable 2003). Path dependency has been also framed in terms of cumulative advantages for scientific recognition investigated in hard sciences: academics who have

robust publication records receive more funding, can set up performative research groups, build or expand laboratories, and buy new equipment, thus paving the way for further high-quality research (Bonaccorsi et al. 2017). It also holds true, as we posit, for academics who have been good citizens of their institutions in the past, which can be represented by the activities carried out in former research evaluation exercise, and continue along this track since it allows them to feel knowledgeable and valuable to themselves and to others. Accordingly, we test the following hypotheses:

Hypothesis 2.a: Previous research-oriented performance favors research in the interplay between research and academic citizenship.
Hypothesis 2.b: Previous academic citizenship performance favors academic citizenship in the interplay between research and academic citizenship.

Studies on academic citizenship also pointed out role and gender as individual features able to influence the propensity to carry out academic citizenship and research. The relationship between academic rank and research is controversial (Baccini et al. 2014). On one hand, rank advancement can positively affect research performance, since full professors can have easier access to funding and attract talented junior researchers in their team (the so-called 'status effect': e.g., Tien and Blackburn (1996). Salter et al.'s (2017) findings corroborate this assumption showing that senior faculty privilege scientific productivity over impact on society. On the other, many studies maintained that, once a career progress has been achieved, incentives to produce research diminish, so that junior lecturers are more active than full professors (e.g., Fabel 2008). Finally, position can exert no effect on research productivity when other variables are taken into account (Over 1982). In the Italian context, it is notable that, according to the Gelmini reform, full professors must maintain a high-profile

publication record if they wish to enter the committees in charge of national and local competitions. Literature tells us that the type of service that faculty undertake depends on their role, as well: senior academics are more willing to perform service roles with high status and power like journal editors, while junior academics execute less prestigious tasks (Macfarlane 2007). Full professors tend also to engage in public service as it confers visibility beyond the university boundaries (Plater 1998). According to Misra et al. (2011), if junior researchers are usually shielded from public service to preserve their research time and full professors take on only the most prestigious tasks, it is associate professors who are loaded with the greatest part of the academic citizenship burden. Relatedly, a large-scale empirical study conducted by Vogelgesang et al. (2010) in US colleges and universities unraveled how a higher academic rank increased the likelihood of performing public service, and similar conclusions were conveyed by Abreu et al. (2009) for UK academics. We expand on these findings to propose that:

Hypothesis 3.a: A higher academic rank disfavors research in the interplay between research and academic citizenship.
Hypothesis 3.b: A higher academic rank favors academic citizenship in the interplay between research and academic citizenship.

Additionally, a conspicuous number of studies argued that gender affects research orientation: men focus more on research than women, even though they are not necessarily more productive nor is their production more qualified than that of their female colleagues (Groot and García-Valderrama 2006; Leahey 2006). Concerning the Italian context, evidence by Benedetto et al. (2016) and by Abramo, D'Angelo, et al. (2013) disclosed that female academics tended to carry out fewer publications than their male colleagues, attributing this pattern to the former's likely

greater involvement in children care, as also claimed for Quebec professors by Larivière et al. (2011). A gap between women and men is claimed in academic citizenship, too: Macfarlane (2007, p. 267) argued that the 'gendered nature of academic citizenship roles also needs to be recognized.' Women are good 'campus citizens' as they are endowed with an 'ethics of care' and an 'institutional virtue' that lead them to actively contribute to the thriving of the organizations they are affiliated to (Gillan 1982; Burton 1997). Women are therefore engaged in the performance of service of all kind, while men prefer discipline-based and public service since it is more visible and confers higher status (Baez 2000; Misra et al. 2011). In particular, female associate professors tend to enact the majority of academic citizenship (Burton 1997; Misra et al. 2011). We therefore formulate the following hypotheses:

Hypothesis 4.a: Male academics favor research in the interplay between research and academic citizenship.

Hypothesis 4.b: Female academics favor academic citizenship in the interplay between research and academic citizenship.

3.1. Control variables

Contextual factors play an important role in the explanation of research productivity, whereas they are still marginally considered in the literature on academic citizenship. Regarding university size, large universities are in general expected to outperform small universities in terms of the quality and quantity of resources offered to the research process (Beyer et al. 1995). Evidence on Italian universities shows a trivial effect of size on research quality, though: unlike other countries, it emerged as statistically insignificant (Ancaiani et al. 2015; Bonaccorsi et al. 2006, 2015). The effect of size on academic citizenship is quite different. University size is believed to negatively influence faculty's intention to perform service

(Macfarlane 2007, 2011). In large institutions in fact, the sense of belonging to a close community is weakened, there is more role specialization, with an enrichment of administrative roles that can integrate or even replace some faculty's tasks (Whitchurch 2009). Consequently, faculty's commitment to academic citizenship is reduced.

Another relevant contextual factor called into question is the university orientation towards teaching or research. Research-intensive universities place emphasis on research through the recruiting process and the quality of administrative staff. Conversely, teaching-focused universities revolve around service to students and put the care for students first, promoting service of any kind (Macfarlane 2011). As a consequence, research-intensive universities are expected to foster individuals' attention to research (Taylor and Cantwell 2015), whereas teaching-focused universities drive academics towards service. In the Italian context specifically, research productivity is positively related to University ranking based on triennial research assessment exercises (Abramo et al. 2014).

The influence of university age has been examined, too. Since Italian universities have been founded throughout a long time span, dating from 1088 (birth of the University of Bologna) on, studies have questioned the effect of age for scientific productivity. In general, age does not impact upon research excellence, but for few disciplines like Chemistry, Medicine, and Law (Ancaiani et al. 2015; Benedetto et al. 2016). Moreover, the literature has tapped into funding and international mobility as contextual factors affecting scientific productivity. A positive influence of funding has been acknowledged: overall, research benefits from the availability of financial resources able to yield access to various sources of knowledge (Daraio and Moed 2011). This occurrence applies to Italian universities, as shown by Ancaiani et al. (2015) and by Abramo, Cicero, et al. (2013), who posit a particularly high effect for STEM disciplines. Another relevant contextual factor to explain Italian academics' scientific productivity is universities' geographical location: academics affiliated to Southern

universities have been shown to be less performing in research than Northern universities' colleagues (Ancaiani et al. 2015; Benedetto et al. 2016). Finally, academics' international mobility reinforces network assets and prompts international collaboration that can sustain the publication record, as testified also by works on the Italian higher education system (Daraio and Moed 2011; Landry et al. 2010; Benedetto et al. 2016).

4. Data and Methods

4.1 Data collection

To test our hypotheses, we focused on academics in the accounting discipline. Pursuing research excellence was particularly challenging in this field since, as with most disciplines pertaining to business schools, it had long been oriented to practice and impact rather than to research and rigor (Knights and Clarke 2014; Salter et al. 2017). The considerable leap from being a 'training ground for the managers of tomorrow' to 'a site where career-oriented academics produce esoteric knowledge for a small community of peers', Butler et al. (2015, p. 731), makes this discipline particularly suitable to investigate the interplay between the research and service. To advance the relevance of studying academic citizenship in the accounting field, it is remarkable that, since an impact through technology transfer is quite difficult to achieve in accounting, academic citizenship is deemed critical to link the theory developed through research to the practice deployed beyond the university boundaries (Beech et al. 2010; Knights and Clarke 2014; Butler et al. 2015).

To have a full picture of publication outcomes, we resorted to the Scopus database, considered a reliable source for accounting for research excellence internationally (Baruffaldi et al. 2016; Chavarro et al. 2017). We complemented data on research outcomes including information on the number of papers published on non-Scopus-indexed journals, number of books, book chapters, and conference proceedings, from a dataset on the evaluation of Italian

universities by the National Agency for the Evaluation of University and Research (ANVUR). The inclusion of these research outcomes is consistent with scientific productivity in Social Sciences and Humanities, which often has a local target and is reported in the national language (Nederhof 2006; Bonaccorsi et al. 2017).To gather information about academic citizenship, we followed the consolidated praxis of collecting faculty's CVs as primary data sources (Dietz and Bozeman 2005; Gaughan 2009). CVs offer a privileged position to explore the academic profession, since they have become a necessary form of personal branding that scholars update and deploy at different stages of their career (Macfarlane 2018). The stress on accountability and transparency in academia has in fact provided scholars with incentives to offer the most accurate picture of their technical, social, and human capital (Cañibano and Bozeman 2009). As a consequence, CVs represent a reliable source about the whole set of professional achievements in a rich and longitudinal format (Dietz et al. 2000). In line with Bagues et al. (2017), we resorted to an indirect collection of CVs because of its lower intrusiveness (Gaughan and Bozeman 2002). We downloaded the CVs of Italian candidates for associate and full professorship from the website of the National Qualification Exam[1]. On the same site, we collected also the CVs of candidates to national evaluation committees, whose members can be only full professors. To integrate with CVs of academics who did not participate in the National Qualification Exam as candidates nor as evaluators, we looked up university webpages, websites related to research projects and professional associations. At the end of our search, we were able to collect 353 full CVs. The sample is composed of 35% females, 44% assistant professors, 29% associate professors, 27% full professors. Chi-square tests revealed that our sample does not differ significantly from the population of Italian academics in the accounting discipline

[1] We downloaded the CVs of the first wave of 2016 from the following website: http://abilitazione.miur.it/public/pubblicacandidati_16.php

in terms of gender, academic rank, and university of affiliation.

Finally, we integrated our dataset with information about universities to account for contextual factors: in line with Calcagnini et al. (2016), we used the research quality ranking of Italian universities for the 2004-2010 evaluation exercise provided by ANVUR (2013). We relied on the same source to collect information about international mobility and funding. In order for the size of each university to be assessed, we considered the number of students enrolled in 2010 as reported by the Italian Ministry of Education, Universities, and Research (2014). University age was calculated based on the foundation year of each university as reported on universities' websites, and we determined university location distinguishing among universities located in the North, the Center, and the South of the country (Ancaiani et al. 2015).

We developed a coding procedure for the set of variables inquired involving one of the co-authors and two other coders, and, following the process proposed by (Dietz et al. 2000), the protocol was tested on two sets of ten CVs, reaching a Crittenden and Hill (1971) intercoder reliability higher than the 0.85 threshold (Dietz et al. 2000).

We divided the data regarding academics' activities into two different periods that corresponded to two subsequent research evaluation exercises ('Valutazione della Qualità della Ricerca'): the former covers the years going from 2004 to 2010, when scholars were exposed to the pre-Gelmini reform evaluation criteria, and the latter covers the 2011-2013 time lapse, when scholars were subjected to the post-Gelmini reform appraisal system.

4.2 Measures

For each of the two evaluation exercises, we gathered the same set of variables. Concerning academic citizenship, we relied on the classification elaborated by Lawrence et al. (2012), developing an original operationalization that is described in Table 1 alongside the other

measures adopted.

Table 1 about here

The correlation matrix between variables does not show significant high values, ruling out multicollinearity that would undermine the analysis validity (Hair et al. 2010).

4.3 Methods

4.3.1 Cluster analysis

The presence of different patterns of interplay can be grasped through the emergence of clusters of academics (Hair et al. 2010).

To test Hypothesis 1 we selected Institutional service, Discipline-based service, and Public service in the 2011-2013 period as measures of three different types of academic citizenship, while the variable High-quality research outputs was employed to account for research excellence. Using a graphical approach, we detected extreme values in the sample and eliminated eight observations as outliers that could distort the analysis (Ketchen and Shook 1996). To enhance the validity of the solution (Milligan 1980; Punj and Stewart 1983), we applied a two-step combination approach following the procedure suggested by Hair et al. 2010 (p. 508). The Duda and Hart (1973) stopping rule was applied to find out the optimal number of clusters, with a further check with the dendrogram technique (Ketchen and Shook 1996). An Analysis of Variance (ANOVA) was performed to confirm the significance of differences between clustering variables (Hair et al. 2010, p. 527).

We interpreted the solution obtained by examining the mean values of the clustering variables for each emergent cluster (Hair et al. 2010; Everitt et al. 2011). We assessed cluster stability by measuring the consistency of cluster membership across the solutions generated

by other clustering algorithms (McIntyre and Blashfield 1980; Ketchen and Shook 1996), and then we evaluated the criterion validity of the solution.

Finally, in order to identify peculiar features of the clusters, we performed additional ANOVA tests on the average values of overall productivity between clusters considering papers published on non-Scopus-indexed journals, books, book chapters, and conference proceedings. We also compared each cluster with the overall sample through Chi-square tests to investigate whether each cluster is distributed differently from the entire sample in terms of University location, size, research orientation, and age.

4.3.2 Multinomial logistic regression

To test Hypotheses 2 to 4, according to Brida et al. (2010), we treated the cluster membership as our dependent variable in a Multinomial Logistic Regression (MLR) (McFadden 1973). We included individual variables (High-quality research outputs, Institutional service, Discipline-based service, Public service, Academic Rank, Gender) and contextual features (University research orientation, University size, University international mobility, University funding, University location, and University age) in the 2004-2010 period as independent variables to predict cluster membership. We tested for the independence of irrelevant alternatives (IIA) (Greene 2012), running the Hausman (1978) specification test, and checked the amount of multicollinearity measuring the Variance Inflation Factors (VIF).

5. Findings

5.1 Cluster analysis

In the first stage of the two-step combination approach, the application of the Duda and Hart (1973) stopping rule suggested that the most appropriate number of cluster be five. Significant differences in variables' means across the clusters were confirmed by significant

ANOVA tests.

In order for clusters to be validated, we cross-tabulated the cluster memberships of two solutions of five clusters obtained through different methods (McIntyre and Blashfield 1980). Only 8.7% of observations changed their cluster membership, which is considered a very stable solution (Hair et al. 2010). The significance of an ANOVA on a variable not included in the analysis—High-quality research outputs in 2004-2010 time period—confirmed the solution criterion validity. The profiles of the five clusters are reported in Table 2 that shows the average values of the four clustering variables, alongside the number of academics in each cluster, the average values of additional individual variables related to research (Other papers, Books, Book chapters, Conference proceedings), and the distribution of cluster membership across categorical variables (Gender, Academic rank, University location, University size, University research orientation, and University age).

Table 2 about here

The emergence of defined clusters from our dataset shows different patterns of interplay between research and academic citizenship: three groups out of five are polarized either on research or on a type of service, while the other two are more balanced, providing support for Hypothesis 1. The first cluster grouped 65 academics (18.8%) devoted to research, whom we called ‘Researchers’. They produced on average 3.5 Scopus papers each in the 2011-2013 period, outperforming members of other clusters. The second cluster was composed of 90 academics (26.1%) dedicated to institutional and professional service (3.1 commitments in three years), whom we labelled as ‘Institutional heroes’. Public service was peculiar of another cluster, whose 35 academics (10.1%) took on roles in professional association boards or in other external organizations. Their involvement was significantly higher (3.5

commitments in three years) than that pertaining to peers in the other clusters. We named this cluster 'Ambassadors'. While these first three groups were polarized on specific types of academic citizenship, the remaining two clusters were not oriented towards a specific approach, but they still radically differed from each other. A quite interesting group was made up of 18 academics (only 5.2%) whom we labelled as 'All-rounders', because they could cope with all the activities considered, even outperforming colleagues in other clusters. Finally, and remarkably, a large number of academics (39.7%) could be found in the so-called 'Lost in action' group, whose mean values were the lowest for each clustering variable. A question may arise concerning this group of academics: What do they actually do? The analysis of data on their overall scientific productivity unraveled that they published more papers on journals not indexed on Scopus than 'Researchers': 1.8 against 0.9, and the ANOVA run between clusters on this variable was significant ($p < 0.01$). The other dimensions of productivity considered (Books, Book chapters, and Conference proceedings) did not show significant differences across clusters based on the ANOVA.

The analysis of the patterns of members' distribution across the three geographical areas in Italy did not report significant differences between clusters and the overall sample. In other words, clusters were distributed in the same way as the sample across the country and not concentrated in a single geographical area: in particular, this means that 'Researchers' and 'All-rounders' were not located in the most developed area, i.e. Northern Italy. A similar result emerged for University age: clusters were distributed like the sample in terms of age, that is, they caould not be traced back to different institutional life spans.

Differences between the distribution of the sample and the clusters were found for University size: 'Researchers' were more concentrated in large universities (75.4%) than the sample (66.7%), while they were less present in small universities (1.5% vs 9.3%).

Finally, distribution across University rankings yielded interesting results. Researchers were

more affiliated to high-ranking universities than the overall sample: for instance, the first quartile of the ranking grouped 35.4% of 'Researchers' vs 29.8% of the sample. A similar pattern, albeit sharper, was followed by 'All-rounders': they mostly belonged to top-ranking institutions (61.1%). Conversely, the distribution of 'Institutional heroes' showed a higher concentration in low-ranking universities than the sample: for example, in the fourth quartile they reached 22.2% in comparison to 15.4% of the sample.

5.2 Multinomial logistic regression

To test the hypotheses on the effect of individual features on cluster membership, we ran a multinomial logistic regression with the 'Lost in action' cluster as baseline comparison group. The Hausman (1978) specification test supported the independence of alternatives for all the other clusters. The highest VIF obtained was equal to 3.62, lower than the recommended cutoff value of 10 (Kutner et al. 2004, p. 409), proving that multicollinearity did not affect our results. Table 3 shows the outcomes of the MLR in terms of Relative Risk Ratios of belonging to a cluster different from the baseline ('Lost in action').

Table 3 about here

We found support for path-dependency (Hypotheses 2.a and 2.b): previous commitments to research and/or academic citizenship had a strong positive influence on the chances of later being part of groups polarized on these same activities, while their effect on other cluster memberships was weaker or not significant. Being productive in research, namely increasing by one unit the number of papers published on Scopus in the 2004-2010 period, raised the odds of becoming part of the 'Researchers' cluster by 86% and of the 'All-rounders' cluster by 182%. The effect is not significant for 'Ambassadors' and 'Institutional heroes'. Previous

commitment to institutional service significantly increased the chances of belonging to the 'Institutional heroes' cluster: any additional citizenship activities of this kind undertaken in the past six years increased the likelihood by 29% in the subsequent three-year time span. Institutional service has a significant effect, albeit weaker, on belongingness to the 'Researchers' group, too. Relatedly, an additional public activity carried out in the past enhanced the chance of being in the 'Ambassadors' cluster by 43%.

A different reflection should be formulated for 'All-rounders': the number of academics who exceled in all types of behaviors is very low (5.22%), and several factors affected cluster membership. All citizenship activities had a significant positive influence on the odds ratio, except for public service, which exerts a partially significant negative effect (-34%). This may be due to the fact that 'All-rounders' developed through a pathway based primarily on research and academia-oriented service.

The odds of belonging to the 'Researchers' and 'Institutional heroes' (plus the 'All-rounders') clusters were positively affected also by previous discipline-based activities, respectively by 48% and 68%. This kind of service appeared therefore as a particularly virtuous engagement able to lead to excellence both in research and in academic citizenship. As underlined above, it represents a meaningful connection between research and service (Thompson et al. 2005).

We did not find support for Hypotheses 3.a and 3.b on the effect of academic rank, thus testifying to the controversial influence exerted by rank on research and academic citizenship (e.g. Baccini et al. (2014), with the sole exception of 'All-rounders'. Full professors had lower chances of becoming 'All-rounders' than assistant professors (-82%), but significance is weak.

Concerning the hypotheses on gender (4.a and 4.b), being a male had a partially significant effect on the chances of being in the 'Researchers' cluster, lessening them by 50%, in line

with Groot and García-Valderrama (2006). Consequently, Hypothesis 4.a is confuted. We found also an effect of gender on academic citizenship-oriented clusters: the odds for males of being part of the 'Ambassadors' were 233% higher than for females, although only partially significant, coherently with the assumption that men be more interested in public activities (Baez 2000; Misra et al. 2011).. Our analysis confutes Hypothesis 4.b on the higher likelihood of female academics of engaging in academic citizenship (Vogelgesang et al. 2010), as well.

The analysis of contextual variables showed that University size affected the research-intensive cluster: working in a small university diminishes the chances of being affiliated with the 'Researchers' cluster (-85%) compared to operating in a larger institution, although significance is weak. This finding is consistent with general expectations about the interplay between University size and scientific productivity, but not with the Italian setting for which no relevant relationship has been found so far (e.g., Bonaccorsi et al. 2015; Taylor and Cantwell 2015). Also working in a medium-sized university was 97% less favorable than working in a large university, as far as the odds of becoming an 'All-rounder' were concerned. Unlike theoretical assumptions (Macfarlane 2007, 2011), academic citizenship did not seem to be impacted by University size since memberships in 'Institutional heroes' and 'Ambassadors' clusters were not significantly influenced by institutional size.

Regarding University research orientation, it affected the odds of being part of the 'Institutional Heroes' cluster, as theorized by Macfarlane (2007): the lower the ranking of the university, the higher the possibility of being in that cluster, ranging from 370% to 715% of odds increase. The effect of this control variable on 'Researchers' or 'All-rounders' cluster memberships did not yield significant results, unlike extant literature on this issue (Taylor and Cantwell 2015).

The third control variable taken into account, University age, did not significantly affect

cluster membership chances, consistently with previous findings on Italian universities (Ancaiani et al. 2015; Benedetto et al. 2016), with the sole exception of 'All-rounders': membership in this cluster is strongly influenced by belongingness to a modern university. This peculiar evidence deserves further elucidation, for instance through multiple case studies investigating the processes unfolding in different-sized universities. Regarding University location, no significant influence on cluster membership emerged from the analysis, contrary to the expectation that scientific productivity is higher in Northern Italy (e.g., Ancaiani et al. 2015).

Finally, University funding did not appear to significantly predict cluster membership, but for a weakly significant negative impact on being 'Ambassadors', likely because the sample is composed of academics in accounting whose research does not necessitate considerable investments in laboratories and equipment (Ancaiani et al. 2015; Abramo, Cicero, et al. 2013). Conversely, international mobility significantly enhanced just the chances of being in the 'All-rounders' cluster (78%): experiences of foreign contexts likely made faculty not only appealing for, and willing to undertake, service activities, but also provided beneficial research stimuli.

6. Discussion

Our study addresses the relationship between allegedly competing academic commitments, investigating the interplay between research and academic citizenship. A cluster analysis reveals that, despite the pressure to publish more and better, half of the academics under study polarized their behaviors, respectively privileging research, institutional service, or public service, thus testifying to a likely effort substitution between academic tasks, with the exceptions of a large group that remained 'stuck in the middle' and of a scant cohort of scholars who exceled in all the facets.

Remarkably, the strongest explanation for belongingness to clusters resides in past performance. Path dependency is in fact the most meaningful predictor of future profiles in terms of research excellence and academic citizenship, while other individual features that have been empirically investigated or theoretically claimed to affect research performance and service engagement, such as academic rank, do not exert a significant influence for the academics that we analyzed.

A thorough view of clusters allows us to expand on, or mark a difference with, some current assumptions. First, the five groups are distributed across Italy in the same way as the sample, whereas universities located in the North of the country, which has the highest concentration of innovative firms sensitive to research, usually rank higher in terms of scientific productivity (Ancaiani et al. 2015; Benedetto et al. 2016). The academic profiles that the clusters disclosed therefore stress a national trend rather than local idiosyncrasies.

Second, academics that we labeled as 'Lost in action' based on indexed journals as an internationally recognized measure of scientific productivity (Daraio and Moed 2011; Lee et al. 2015) were not actually inactive: the average number of extra-Scopus publications that they attained doubled that of the so-called 'Researchers', albeit it was lower than the average number achieved by 'Ambassadors' and 'Institutional heroes'. Different forms of productivity can thus be reported for individuals who would not qualify as outstanding scholars according to international standards, but whose publication record may be aligned with that prevalent in Social Sciences and Humanities, often targeting a local audience with its own needs and expectations (e.g., Austin 2002; Bonaccorsi et al. 2017).

Third, taking university ranking into account, it is noteworthy that members of the clusters with good research performance ('Researchers' and 'All-rounders') are mostly located in the universities that score better, while 'Institutional heroes' tend to be affiliated to lower-ranking universities. Although coherent with the conjecture that scientific productivity thrives in

research-oriented environments (Taylor and Cantwell 2015), the relative concentration of academics with higher research performance in the best institutions problematizes the claim that there is more variance of top and low performers within Italian universities than across universities (Abramo et al. 2011; Abramo, D'Angelo, et al. 2013). In non-competitive systems like Italy, a difference in the distribution of top and low performers across organizations is not expected in fact. At the same time, the fact that 'Institutional heroes' are located in low-ranking universities is consistent with the idea that academic citizenship is intensely enacted in settings that do not stand out for research outcomes, but may privilege service (Macfarlane 2007, 2011). Overall, the argument that research and service might be substitute for each other gains strength from this finding. Moreover, the evidence that discipline-based service increases the chances of being part of the 'Researchers' and 'All-rounders' groups sheds light on the kinship between this type of service and research excellence, in line with extant conjecture (Thompson et al. 2005; Nørgård and Bengtsen 2016).

Finally, the belief that women are intensely involved in academic citizenship due to their nurturing nature and propensity towards 'institutional housekeeping' (e.g., Vogelgesang et al. 2010; Misra et al. 2011), while men are more dedicated to research (e.g., Groot and García-Valderrama 2006; Leahey 2006), does not resonate with the emergent clustering structure. Male faculty have more chances to become 'Ambassadors' rather than 'Researchers': if it is not surprising that male academics may cater to a type of service that is visible and prestigious (Antonio et al. 2000; Vogelgesang et al. 2010), it is remarkable that they do not outperform women in research nor are these latter distinguished in terms of their academic citizenship intensity.

Taken altogether, evidence reveals that emphasis on research, legitimized in Italy by a reform meant to sponsor accountability and transparency and to disrupt detrimental power relations,

has not dramatically changed academics' patterns of behavior. Conversely, it has bound individuals to continue along their consolidated pathways, marking a gap between research and service and leaving a large number of faculty underperforming according to international standards. Alongside an explanation that relies on individuals' need for self-continuity through the reiteration of familiar courses of action (Ashforth 2001), path dependency can be framed within the larger debate on the way research excellence has been injected into the Italian higher education system. Rebora and Turri (2013) stressed two shortcomings of this process. On one hand, research relevance was introduced out of imitation of other university systems. The Italian research evaluation exercise was in fact designed following the example of the British research assessment exercise, but without the strong New Public Management culture sustaining this latter. As described above, the Italian context was rather the opposite, imbued with inefficiency and obscure power relations. On the other, the reform was brought into Italian academics' life without a sufficiently shared discussion. Consequently, diffidence and the perception of the difficulties implied prevailed over awareness of the underlying rationales and related opportunities. This performance-based evaluation system therefore reinforced individual resistance and failed to motivate the wished-for behavioral changes (Holmstrom and Milgrom 1994).

Beyond informing our understanding of the relationship between research and service, our study conveys hints for policy making. The current Italian assessment of academics' performance described above rewards primarily faculty that achieve given research standards and downgrades the relevance of academic citizenship. This trend was argued to apply to most higher education systems internationally (Macfarlane 2005; Aguinis et al. 2014; Butler et al. 2015). Accordingly, a look at the clusters disclosed by our analysis would lead us to tell that only academics belonging to the clusters that have been labeled as 'Researchers' and 'All-rounders' would qualify for career advancements. While the role of 'All-rounders' needs

further investigation, they are strikingly a limited minority. Higher education policies should explicitly foster, since advertising job openings, and consistently reward academic citizenship, given its relevance for the effectiveness of organizational functioning (e.g., Macfarlane 2005; Starkey et al. 2009; Macfarlane 2011; Lawrence et al. 2012; Aguinis et al. 2014).

Thinking about research directions, this study has considered both in the cluster and in the regression analysis the factors that the few studies on academic citizenship have argued to be relevant. Future research should enrich this framework by including other elements in the study of academics' choices concerning the tasks and roles to be enacted. For instance, other individual factors like personality traits and attitudes, such as job satisfaction and organizational identification, might be important for work-related decisions (e.g., George and Jones 2012). In addition, with regard to the service pyramid conceived of by Macfarlane (2007), our study has not tapped into service linked to teaching like collegial and student service. This is partly due to the fact that teaching requirements are quite standardized in Italy and, consequently, Italian academics' CVs tend to overlook information on teaching-related activities (Abramo, Cicero, et al. 2013). We invite future research to provide a more comprehensive representation of service. Moreover, since our sample covers only faculty in accounting, studies in different disciplines are needed to make any claims more robust.

Finally, this paper sheds light on the difficulties that academics can face to bring to convergence their being good citizens of the university and good researchers, which may leave them puzzled about which actions to take. It also shows that emphasis on research may leave behind a large number of academics, distributed across universities, who do not excel in research according to international standards, but are not inactive and can contribute to the development of knowledge in a different way. After almost a decade since the reform was introduced through a top-down logic in Italy, time is ripe to critically rethink the way

research excellence is conceived of and assessed, voicing the opinions of the individuals who daily experience, within departments and universities, the struggle to reconcile divergent expectations and tasks.

7. References

Abramo, G., Cicero, T., & D'Angelo, C. A. (2011). The dangers of performance-based research funding in non-competitive higher education systems. *Scientometrics*, *87*(3), 641–654. doi:10.1007/s11192-011-0355-4

Abramo, G., Cicero, T., & D'Angelo, C. A. (2013). The impact of unproductive and top researchers on overall university research performance. *Journal of Informetrics*, *7*(1), 166–175. doi:10.1016/j.joi.2012.10.006

Abramo, G., Cicero, T., & D'Angelo, C. A. (2014). Are the authors of highly cited articles also the most productive ones? *Journal of Informetrics*, *8*(1), 89–97. doi:10.1016/j.joi.2013.10.011

Abramo, G., D'Angelo, C. A., & Murgia, G. (2013). Gender differences in research collaboration. *Journal of Informetrics*, *7*(4), 811–822. doi:10.1016/j.joi.2013.07.002

Abreu, M., Grinevich, V., Hughes, A., & Kitson, M. (2009). *Knowledge exchange between academics and the business, public and third sectors*. London, GB: University of Cambridge; Imperial College London.

Agenzia Nazionale di Valutazione del Sistema Universitario e della Ricerca (ANVUR). (2013). *Valutazione della Qualità della Ricerca 2004-2010*. Roma.

Aguinis, H., Shapiro, D. L., Antonacopoulou, E. P., & Cummings, T. G. (2014). Scholarly Impact: A Pluralist Conceptualization. *Academy of Management Learning & Education*, *13*(4), 623–639. doi:10.5465/amle.2014.0121

Ancaiani, A., Anfossi, A. F., Barbara, A., Benedetto, S., Blasi, B., Carletti, V., et al. (2015). Evaluating scientific research in Italy: The 2004–10 research evaluation exercise. *Research Evaluation*, *24*(3), 242–255. doi:10.1093/reseval/rvv008

Antonio, A. L., Astin, H. S., & Cress, C. M. (2000). Community Service in Higher Education: A Look at the Nation's Faculty. *The Review of Higher Education*, *23*(4), 373–397. doi:10.1353/rhe.2000.0015

Ashforth, B. E. (2001). *Role transitions in organizational life: an identity-based perspective*. Mahwah, N.J: Lawrence Erlbaum Associates.

Ashforth, B. E., Schinoff, B. S., & Rogers, K. M. (2016). "I Identify with Her," "I Identify with Him": Unpacking the Dynamics of Personal Identification in Organizations. *Academy of Management Review*, *41*(1), 28–60. doi:10.5465/amr.2014.0033

Assessment time. (2010). *Nature*, *468*(7327), 1001–2.

Austin, A. E. (2002). Preparing the Next Generation of Faculty: Graduate School as Socialization to the Academic Career. *The Journal of Higher Education*, *73*(1), 94–122. doi:10.1353/jhe.2002.0001

Baccini, A., Barabesi, L., Cioni, M., & Pisani, C. (2014). Crossing the hurdle: the determinants of individual scientific performance. *Scientometrics*, *101*(3), 2035–2062. doi:10.1007/s11192-014-1395-3

Baez, B. (2000). Race-related service and faculty of color: Conceptualizing critical agency in academe. *Higher Education*, *39*(3), 363–391. doi:10.1023/A:1003972214943

Bagues, M., Sylos-Labini, M., & Zinovyeva, N. (2017). Does the Gender Composition of

Scientific Committees Matter? *American Economic Review*, *107*(4), 1207–1238. doi:10.1257/aer.20151211
Bak, H.-J., & Kim, D. H. (2015). Too much Emphasis on Research? An Empirical Examination of the Relationship Between Research and Teaching in Multitasking Environments. *Research in Higher Education*, *56*(8), 843–860. doi:10.1007/s11162-015-9372-0
Baruffaldi, S., Visentin, F., & Conti, A. (2016). The productivity of science & engineering PhD students hired from supervisors' networks. *Research Policy*, *45*(4), 785–796. doi:10.1016/j.respol.2015.12.006
Beech, N., MacIntosh, R., & MacLean, D. (2010). Dialogues between Academics and Practitioners: The Role of Generative Dialogic Encounters. *Organization Studies*, *31*(9–10), 1341–1367. doi:10.1177/0170840610374396
Benedetto, S., Cicero, T., & Malgarini, M. (2016). Determinants of research quality in Italian universities: Evidence from the 2004 to 2010 evaluation exercise. *Research Evaluation*, *25*(3), 257–263. doi:10.1093/reseval/rvw017
Beyer, J. M., Chanove, R. G., & Fox, W. B. (1995). The Review Process and the Fates of Manuscripts Submitted to AMJ. *Academy of Management Journal*, *38*(5), 1219–1260. doi:10.2307/256856
Bolden, R., Gosling, J., & O'Brien, A. (2014). Citizens of the academic community? A societal perspective on leadership in UK higher education. *Studies in Higher Education*, *39*(5), 754–770. doi:10.1080/03075079.2012.754855
Bonaccorsi, A., Cicero, T., Ferrara, A., & Malgarini, M. (2015). Journal ratings as predictors of articles quality in Arts, Humanities and Social Sciences: an analysis based on the Italian Research Evaluation Exercise. *F1000Research*, *4*, 196. doi:10.12688/f1000research.6478.1
Bonaccorsi, A., Daraio, C., Fantoni, S., Folli, V., Leonetti, M., & Ruocco, G. (2017). Do social sciences and humanities behave like life and hard sciences? *Scientometrics*, *112*(1), 607–653. doi:10.1007/s11192-017-2384-0
Bonaccorsi, A., Daraio, C., & Simar, L. (2006). Advanced indicators of productivity of universities: An application of robust nonparametric methods to Italian data. *Scientometrics*, *66*(2), 389–410. doi:10.1007/s11192-006-0028-x
Brida, J. G., Osti, L., & Barquet, A. (2010). Segmenting resident perceptions towards tourism - a cluster analysis with a multinomial logit model of a mountain community. *International Journal of Tourism Research*, *12*, 591–602. doi:10.1002/jtr.778
Burton, C. (1997). *Gender equity in Australian university staffing*. Canberra: AGPS.
Butler, N., Delaney, H., & Spoelstra, S. (2015). Problematizing 'Relevance' in the Business School: The Case of Leadership Studies: Problematizing 'Relevance' in the Business School. *British Journal of Management*, *26*(4), 731–744. doi:10.1111/1467-8551.12121
Calcagnini, G., Favaretto, I., Giombini, G., Perugini, F., & Rombaldoni, R. (2016). The role of universities in the location of innovative start-ups. *The Journal of Technology Transfer*, *41*(4), 670–693. doi:10.1007/s10961-015-9396-9
Cañibano, C., & Bozeman, B. (2009). Curriculum vitae method in science policy and research evaluation: the state-of-the-art. *Research Evaluation*, *18*(2), 86–94. doi:10.3152/095820209X441754
Capano, G. (2011). Government continues to do its job. A comparative study of governance shifts in the higher education sector. *Public Administration*, *89*(4), 1622–1642. doi:10.1111/j.1467-9299.2011.01936.x
Cartlidge, E. (2010). Italian Parliament Passes Controversial University Reforms. *Science*, *330*(6010), 1462–1463. doi:10.1126/science.330.6010.1462-a
Chavarro, D., Tang, P., & Ràfols, I. (2017). Why researchers publish in non-mainstream

journals: Training, knowledge bridging, and gap filling. *Research Policy*, *46*(9), 1666–1680. doi:10.1016/j.respol.2017.08.002
Crittenden, K. S., & Hill, R. J. (1971). Coding Reliability and Validity of Interview Data. *American Sociological Review*, *36*(6), 1073–1080. doi:10.2307/2093766
Daraio, C., & Moed, H. F. (2011). Is Italian science declining? *Research Policy*, *40*(10), 1380–1392. doi:10.1016/j.respol.2011.06.013
Degn, L. (2016). Academic sensemaking and behavioural responses – exploring how academics perceive and respond to identity threats in times of turmoil. *Studies in Higher Education*, 1–17. doi:10.1080/03075079.2016.1168796
Dietz, J., & Bozeman, B. (2005). Academic careers, patents, and productivity: industry experience as scientific and technical human capital. *Research Policy*, *34*(3), 349–367. doi:10.1016/j.respol.2005.01.008
Dietz, J., Chompalov, I., Bozeman, B., Lane, E., & Park, J. (2000). Using the curriculum vita to study the career paths of scientists and engineers: An exploratory assessment. *Scientometrics*, *49*(3), 419–442.
Duda, R. O., & Hart, P. E. (1973). *Pattern classification and scene analysis*. New York: Wiley.
Empson, L. (2013). My Affair With the "Other": Identity Journeys Across the Research–Practice Divide. *Journal of Management Inquiry*, *22*(2), 229–248. doi:10.1177/1056492612446068
Everitt, B. S., Landau, S., Leese, M., & Stahl, D. (2011). *Cluster Analysis*. John Wiley & Sons.
Fabel, O. (2008). Editorial: Zum Schwerpunkt Forschungs-Rankings. *Perspektiven der Wirtschaftspolitik*, *9*(3), 252–253. doi:10.1111/j.1468-2516.2008.00278.x
Franceschini, F., & Maisano, D. (2017). Critical remarks on the Italian research assessment exercise VQR 2011–2014. *Journal of Informetrics*, *11*(2), 337–357. doi:10.1016/j.joi.2017.02.005
Frischknecht, F. (2008). Small countries are unexpected winners in ERC grant tables. *Nature*, *454*(7205), 690–690. doi:10.1038/454690a
Frølich, N. (2011). Multi-layered accountability. Performance-based funding of Universities. *Public Administration*, *89*(3), 840–859. doi:10.1111/j.1467-9299.2010.01867.x
Fussy, D. S. (2017). Policy directions for promoting university research in Tanzania. *Studies in Higher Education*, 1–13. doi:10.1080/03075079.2016.1266611
Gaughan, M. (2009). Using the curriculum vitae for policy research: an evaluation of National Institutes of Health center and training support on career trajectories. *Research Evaluation*, *18*(2), 117–124. doi:10.3152/095820209X441781
Gaughan, M., & Bozeman, B. (2002). Using curriculum vitae to compare some impacts of NSF research grants with research center funding. *Research Evaluation*, *11*(1), 17–26. doi:10.3152/147154402781776952
George, J. M., & Jones, G. R. (2012). *Understanding and Managing Organizational Behavior* (6 edition.). Boston: Pearson.
Gillan, C. (1982). *In a different voice: Psychological theory and women's development.* Cambridge, MA: Harvard University Press.
Greene, W. H. (2012). *Econometric analysis* (7th ed.). Boston: Prentice Hall.
Groot, T., & García-Valderrama, T. (2006). Research quality and efficiency. *Research Policy*, *35*(9), 1362–1376. doi:10.1016/j.respol.2006.07.002
Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7 edition.). Upper Saddle River, NJ: Prentice Hall.
Hattie, J., & Marsh, H. W. (1996). The Relationship Between Research and Teaching: A Meta-Analysis. *Review of Educational Research*, *66*(4), 507–542.

doi:10.3102/00346543066004507
Hausman, J. (1978). Specification Tests in Econometrics. *Econometrica*, *46*(6), 1251. doi:10.2307/1913827
Hodgkinson, G. P., & Starkey, K. (2011). Not Simply Returning to the Same Answer Over and Over Again: Reframing Relevance: Reframing Relevance. *British Journal of Management*, *22*(3), 355–369. doi:10.1111/j.1467-8551.2011.00757.x
Holland, B. A. (2016). Factors and strategies that influence faculty involvement in public service. *Journal of Higher Education Outreach and Engagement*, *20*(1), 63–72.
Holmstrom, B., & Milgrom, P. (1994). The Firm as an Incentive System. *The American Economic Review*, *84*(4), 972–991.
Kennedy, D. (1997). *Academic duty*. Cambridge, MA: Harvard University Press.
Ketchen, D. J., & Shook, C. L. (1996). The Application of Cluster Analysis in Strategic Management Research: An Analysis and Critique. *Strategic Management Journal*, *17*(6), 441–458. doi:10.1002/(SICI)1097-0266(199606)17:6<441::AID-SMJ819>3.0.CO;2-G
Kieser, A., Nicolai, A., & Seidl, D. (2015). The Practical Relevance of Management Research: Turning the Debate on Relevance into a Rigorous Scientific Research Program. *The Academy of Management Annals*, *9*(1), 143–233. doi:10.1080/19416520.2015.1011853
Knights, D., & Clarke, C. A. (2014). It's a Bittersweet Symphony, this Life: Fragile Academic Selves and Insecure Identities at Work. *Organization Studies*, *35*(3), 335–357. doi:10.1177/0170840613508396
Kutner, M. H., Nachtsheim, C., & Neter, J. (2004). *Applied linear regression models.* Boston; New York: McGraw-Hill/Irwin.
Landry, R., Saïhi, M., Amara, N., & Ouimet, M. (2010). Evidence on how academics manage their portfolio of knowledge transfer activities. *Research Policy*, *39*(10), 1387–1403. doi:10.1016/j.respol.2010.08.003
Larivière, V., Vignola-Gagné, E., Villeneuve, C., Gélinas, P., & Gingras, Y. (2011). Sex differences in research funding, productivity and impact: an analysis of Québec university professors. *Scientometrics*, *87*(3), 483–498. doi:10.1007/s11192-011-0369-y
Lawrence, J., Ott, M., & Bell, A. (2012). Faculty Organizational Commitment and Citizenship. *Research in Higher Education*, *53*(3), 325–352. doi:10.1007/s11162-011-9230-7
Leahey, E. (2006). Gender differences in productivity: Research specialization as a missing link. *Gender & Society*, *20*(6), 754–780.
Lee, Y.-N., Walsh, J. P., & Wang, J. (2015). Creativity in scientific teams: Unpacking novelty and impact. *Research Policy*, *44*(3), 684–697. doi:10.1016/j.respol.2014.10.007
Lewis, J. M. (2014). Individual and Institutional Accountability: The Case of Research Assessment: Individual and Institutional Accountability. *Australian Journal of Public Administration*, *73*(4), 408–416. doi:10.1111/1467-8500.12105
Macfarlane, B. (2005). The Disengaged Academic: the Retreat from Citizenship. *Higher Education Quarterly*, *59*(4), 296–312. doi:10.1111/j.1468-2273.2005.00299.x
Macfarlane, B. (2007). Defining and Rewarding Academic Citizenship: The implications for university promotions policy. *Journal of Higher Education Policy and Management*, *29*(3), 261–273. doi:10.1080/13600800701457863
Macfarlane, B. (2011). The Morphing of Academic Practice: Unbundling and the Rise of the Para-academic: The Morphing of Academic Practice. *Higher Education Quarterly*, *65*(1), 59–73. doi:10.1111/j.1468-2273.2010.00467.x
Macfarlane, B. (2018). The CV as a symbol of the changing nature of academic life: performativity, prestige and self-presentation. *Studies in Higher Education*, 1–12. doi:10.1080/03075079.2018.1554638

Martin, B. R. (2011). The Research Excellence Framework and the "impact agenda": are we creating a Frankenstein monster? *Research Evaluation*, *20*(3), 247–254. doi:10.3152/095820211X13118583635693
McFadden, D. (1973). Conditional Logit Analysis of Qualitative Choice Behavior. *Frontiers in Econometrics*, 105–142.
McIntyre, R. M., & Blashfield, R. K. (1980). A Nearest-Centroid Technique For Evaluating The Minimum-Variance Clustering Procedure. *Multivariate Behavioral Research*, *15*(2), 225–238. doi:10.1207/s15327906mbr1502_7
Milligan, G. W. (1980). An examination of the effect of six types of error perturbation on fifteen clustering algorithms. *Psychometrika*, *45*(3), 325–342. doi:10.1007/BF02293907
Ministero dell'Istruzione dell'Università e della Ricerca - Ufficio di Statistica. (2014). Elaborazione su dati Anagrafe Nazionale degli Studenti Universitari.
Misra, J., Lundquist, J. H., Holmes, E., & Agiomavritis, S. (2011). The Ivory Ceiling of Service Work. *Academe*, *97*(1), 22–26.
Nederhof, A. J. (2006). Bibliometric monitoring of research performance in the Social Sciences and the Humanities: A Review. *Scientometrics*, *66*(1), 81–100. doi:10.1007/s11192-006-0007-2
Neumann, A., & Terosky, A. L. (2007). To Give and to Receive: Recently Tenured Professors' Experiences of Service in Major Research Universities. *The Journal of Higher Education*, *78*(3), 282–310. doi:10.1080/00221546.2007.11772317
Nørgård, R. T., & Bengtsen, S. S. E. (2016). Academic citizenship beyond the campus: a call for the placeful university. *Higher Education Research & Development*, *35*(1), 4–16. doi:10.1080/07294360.2015.1131669
Organ, D. W., Podsakoff, P. M., & MacKenzie, S. B. (2005). *Organizational Citizenship Behavior: Its Nature, Antecedents, and Consequences*. SAGE Publications.
Over, R. (1982). Does research productivity decline with age? *Higher Education*, *11*(5). doi:10.1007/BF00194416
Pifer, M., & Baker, V. (2013). Identity as a Theoretical Construct in Research about Academic Careers. In J. Huisman & M. Tight (Eds.), *International Perspectives on Higher Education Research* (Vol. 9, pp. 115–132). Emerald Group Publishing Limited. doi:10.1108/S1479-3628(2013)0000009010
Plater, W. (1998). Using Tenure: Citizenship within the New Academic Workforce. *American Behavioral Scientist*, *41*(5), 680–715. doi:10.1177/0002764298041005007
Punj, G., & Stewart, D. W. (1983). Cluster Analysis in Marketing Research: Review and Suggestions for Application. *Journal of Marketing Research*, *20*(2), 134. doi:10.2307/3151680
Rebora, G., & Turri, M. (2013). The UK and Italian research assessment exercises face to face. *Research Policy*, *42*(9), 1657–1666. doi:10.1016/j.respol.2013.06.009
Salter, A., Salandra, R., & Walker, J. (2017). Exploring preferences for impact versus publications among UK business and management academics. *Research Policy*, *46*(10), 1769–1782. doi:10.1016/j.respol.2017.08.005
Shils, E. (1997). *The calling of education: the academic ethic and other essays on higher education*. Chicago: University of Chicago Press.
Starkey, K., Hatchuel, A., & Tempest, S. (2009). Management Research and the New Logics of Discovery and Engagement. *Journal of Management Studies*, *46*(3), 547–558. doi:10.1111/j.1467-6486.2009.00833.x
Swann, W. B., Johnson, R. E., & Bosson, J. K. (2009). Identity negotiation at work. *Research in Organizational Behavior*, *29*, 81–109. doi:10.1016/j.riob.2009.06.005
Taylor, B. J., & Cantwell, B. (2015). Global Competition, US Research Universities, and International Doctoral Education: Growth and Consolidation of an Organizational Field.

Research in Higher Education, *56*(5), 411–441. doi:10.1007/s11162-014-9355-6
Teelken, C. (2015). Hybridity, coping mechanisms, and academic performance management: Comparing three countries. *Public Administration*, *93*(2), 307–323. doi:10.1111/padm.12138
Thompson, P., Constantineau, P., & Fallis, G. (2005). Academic Citizenship: An Academic Colleagues' Working Paper. *Journal of Academic Ethics*, *3*(2–4), 127–142. doi:10.1007/s10805-006-9010-8
Tien, F. F., & Blackburn, R. T. (1996). Faculty Rank System, Research Motivation, and Faculty Research Productivity: Measure Refinement and Theory Testing. *The Journal of Higher Education*, *67*(1), 2–22. doi:10.1080/00221546.1996.11780246
Vogelgesang, L. J., Denson, N., & Jayakumar, U. M. (2010). What Determines Faculty-Engaged Scholarship? *The Review of Higher Education*, *33*(4), 437–472. doi:10.1353/rhe.0.0175
Wernimont, P. F., & Campbell, J. P. (1968). Signs, samples, and criteria. *Journal of Applied Psychology*, *52*(5), 372–376. doi:10.1037/h0026244
Whitchurch, C. (2009). The rise of the blended professional in higher education: a comparison between the United Kingdom, Australia and the United States. *Higher Education*, *58*(3), 407–418. doi:10.1007/s10734-009-9202-4
Whitchurch, C. (2010). Some implications of 'public/private' space for professional identities in higher education. *Higher Education*, *60*(6), 627–640. doi:10.1007/s10734-010-9320-z
Wiley, C., Wallingford, V., Monllor-Tormos, M., & Konyu-Fogel, G. (2016). Faculty Promotion in Business Schools: What Counts and What Should Count? *Journal of Higher Education Theory and Practice*, *16*(4), 105.
Williamson, I. O., & Cable, D. M. (2003). Predicting early career research productivity: the case of management faculty. *Journal of Organizational Behavior*, *24*(1), 25–44. doi:10.1002/job.178

Table 1. Variables definition and operationalization

Measure	Operationalization	Main references
High-quality research outputs	Count of Scopus publications per academic [source: Scopus]	Baccini et al. (2014); Baruffaldi et al. (2016)
Other publications	Count of papers on non-Scopus-indexed journals, number of books, number of book chapters, number of contributions to conference proceedings [Source: National Agency for the Evaluation of University and Research]	Nederhof (2006); Bonaccorsi et al. (2017)
Institutional service	Count of activities aimed at supporting the university functioning carried out on a yearly basis (e.g. membership of executive academic board, degree program director, head of department) [Source: CVs]	Thompson et al. (2005); Macfarlane (2007); Lawrence et al. (2012)
Discipline-based service	Count of journals for which an academic acts as peer reviewer or participates in the editorial board on a yearly basis (e.g. membership of a journal editorial board, membership of a conference committee, conference program chair) [Source: CVs]	Macfarlane (2007); Lawrence et al. (2012)
Public service	Number of formal roles taken on by each academic outside the university on a yearly basis (e.g. membership of the board of directors in public and non-profit organizations, formal roles in institutional bodies) [Source: CVs]	Macfarlane (2007); Lawrence et al. (2012); Wiley et al. (2016)
Academic rank	Categorical variable: 1 for assistant professors, 2 for associate professors, and 3 for full professors [Source: National Agency for the Evaluation of University and Research]	Macfarlane (2007); Baccini et al. (2014)
Gender	Categorical variable: 0 for female, 1 for male [Source: National Agency for the Evaluation of University and Research]	Leahey (2006)
University size	Categorical variable based on the student population: 1 for universities with less than 10,000 students (Small), 2 between 10,000 and 20,000 (Medium), 3 more than 20,000 students (Large) [Source: Italian Ministry of Education, Universities and Research]	Taylor and Cantwell (2015)
University research orientation	Categorical variable based on the 2004-2010 ranking of Italian universities, elaborated in quartiles: from 1 for high-ranking universities to 4 for low-ranking universities [Source: National Agency for the Evaluation of University and Research]	Taylor and Cantwell (2015)
University age	Categorical variable: 1 for historical universities (founded before 1945), 2 for modern universities (founded between 1946 and 1980), 3 for contemporary universities (founded after 1980) [Source: Universities' websites]	Benedetto et al, (2016)
University international mobility	Continuous variable: sum of the durations of all the visiting periods in a university divided by the number of academics in that institution [Source: National Agency for the Evaluation of University and Research]	Ancaiani et al. (2015)
University funding	Continuous variable: total amount of funding divided by the number of academics in a university [Source: National Agency for the Evaluation of University and Research]	Ancaiani et al. (2015)

University location	Categorical variable: 1 for universities located in the South, 2 for universities located in the Center, 3 for universities located in the North	Ancaiani et al. (2015); Benedetto et al. (2016)

Table 2. Clusters profiles

	Clusters					
	Researchers	**Lost in Action**	**Ambassadors**	**Institutional heroes**	**All-rounders**	**Total**
N	65	137	35	90	18	345
%	18.84%	39.71%	10.14%	26.09%	5.22%	100%
Institutional service	1.08	0.29	1.00	3.13	2.67	1.38
Public service	0.86	0.12	3.51	0.49	1.22	0.76
Discipline-based service	0.38	0.16	0.17	1.10	2.28	1.58
High-quality research outputs	3.52	0.45	0.66	0.64	9.61	0.56
Other papers	0.92	1.81	2.40	5.57	0.28	2.60
Books	1.31	1.23	1.49	1.53	1.39	1.36
Book chapters	3.71	2.89	3.11	3.30	4.61	3.26
Conference proceedings	2.34	1.50	1.66	1.67	1.78	1.73
Male	56.92%	63.33%	88.57%	64.96%	61.11%	65.22%
Academic rank						
Assistant professor	44.62%	48.89%	31.43%	44.53%	44.44%	44.34%
Associate professor	33.85%	27.78%	31.43%	27.01%	33.33%	29.27%
Full professor	21.54%	23.33%	37.14%	28.47%	22.22%	26.38%
University location						
South	16.92%	24.82%	37.14%	27.78%	16.67%	24.93%
Center	38.46%	24.82%	25.71%	21.11%	22.22%	26.38%
North	44.62%	50.36%	37.14%	51.11%	61.11%	48.70%
University dimension						
Small	**1.54%**	10.95%	11.43%	11.11%	11.11%	9.28%
Medium	**23.08%**	23.36%	31.43%	23.33%	22.22%	24.06%
Large	**75.38%**	65.69%	57.14%	65.56%	66.67%	66.67%
University research orientation						
I quartile	**35.38%**	31.39%	37.14%	**14.44%**	**61.11%**	29.86%
II quartile	**33.85%**	25.55%	17.14%	**38.89%**	**11.11%**	28.99%
III quartile	**27.69%**	26.28%	25.71%	**24.44%**	**22.22%**	25.80%
IV quartile	**3.08%**	16.79%	20.00%	**22.22%**	**5.56%**	15.36%
University age						
Historical	72.31%	62.04%	51.43%	58.89%	61.11%	62.03%
Modern	13.85%	13.87%	20.00%	12.22%	22.22%	14.49%
Contemporary	13.85%	24.09%	28.57%	28.89%	16.67%	23.48%

Numbers in bold mean that there are significant differences between the distribution of the cluster and the distribution of the sample.

Table 3. Multinomial logistic model of the influence of individual and contextual features on cluster membership

	Researchers	Institutional heroes	Ambassadors	All-rounders
	RRR	RRR	RRR	RRR
High-quality research outputs (2004-2010)	1.86***	1.21	1.24	2.82***
Institutional service (2004-2010)	1.10*	1.29***	1.09	1.31***
Discipline-based service (2004-2010)	1.48**	1.41**	1.13	1.68**
Public service (2004-2010)	1.12	1.07	1.43***	0.66*
Academic rank (baseline: Assistant prof.)				
Associate prof.	1.02	0.91	1.22	0.72
Full prof.	0.50	0.67	1.31	0.18*
Male	0.50*	1.15	3.33*	0.60
University size (baseline: Large Univ.)				
Medium	0.50	1.01	2.23	0.03*
Small	0.15*	0.94	0.77	0.34
University location (baseline: South)				
Center	1.37	0.99	0.71	1.79
North	0.95	1.55	0.43	15.77
University research orientation (baseline I quartile)				
II quartile	2.31	4.70**	0.69	2.84
III quartile	2.05	5.33**	0.62	29.55
IV quartile	0.37	8.15**	1.12	4.94
University age (baseline: Historical)				
Modern	1.57	1.14	1.27	33.65**
Contemporary	1.17	1.40	2.42	6.29
University funding	1.01	0.98	0.92*	0.98
University international mobility	1.15	1.10	1.19	1.78**
Constant	0.12**	0.03***	0.03**	0.00**

N = 345; χ^2= 224.64; Prob > χ^2 = 0.00; df = 72;
McFadden's R^2 = 0.255; Maximum Likelihood R^2 = 0.515
Baseline outcome: 'Lost in action' cluster.
*** (**, *) indicate a significance level of 1% (5%, 10%)